

IN THE CLAIMS

1. (original/allowed) A device for measuring the flow rate of a substantially continuous fluid flow comprising

a conduit for transporting in a selected direction a continuous fluid flow varying in height up to a maximum height wherein said maximum height is less than the height which would occlude said conduit;

a detector positioned relative to said conduit for determining the height of a selected section of said substantially continuous fluid flow at a first predetermined location and for determining at a second predetermined location located in a selected direction and a known distance from said first predetermined location that said selected section of said continuous fluid flow has traversed from said first predetermined location to said second predetermined location; and

a processing device operatively connected to said detector for deriving the cross-sectional area of said selected section of the substantially continuous fluid flow from said height of a selected section determined by said detector at said first predetermined location, determining an elapsed time for the selected section of said continuous fluid flow to transverse said known distance and for calculating therefrom the fluid flow of said substantially continuous fluid flow through said conduit.

2. (original/allowed) The device of claim 1 wherein said detector has a first detection section for determining at said

first predetermined location the height of said selected section of said continuous fluid flow and a second detection section for determining the height of said selected section of said continuous fluid flow at said second predetermined location.

3. (original) The device of claim 2 wherein said first detection section and said second detection section are located within said conduit, said first detection section comprising a first sensor having a predetermined cross-sectional area defining an opening for passing said fluid flow therethrough wherein said predetermined cross-sectional area is greater than the cross-sectional area of said fluid flow passing therethrough and wherein said second detection section comprises a second sensor having a cross-sectional area substantially equal to the cross-sectional area of the first sensor.

4. (original/allowed) A device for measuring the flow rate of a substantially continuous fluid flow comprising

a conduit for transporting in a selected direction a substantially continuous fluid flow varying in height up to a maximum height wherein said maximum height is less than the height which would occlude said conduit;

a first detector positioned relative to said conduit for determining at a first predetermined location the height of a selected section of said continuous fluid flow; and

a second detector positioned relative to said conduit and said first detector for determining at a second predetermined

location located in the selected direction and a known distance from said first predetermined location that the selected section of said continuous fluid flow has traversed said known distance; and

a processing device operatively connected to said first detector and said second detector for deriving the cross-sectional area of said selected section of the substantially continuous fluid from the height of a selected section at said first predetermined location, for determining an elapsed time for the selected section of said substantially continuous fluid flow to traverse said known distance and for calculating therefrom the fluid flow of said substantially continuous fluid flow through said conduit.

5. (original/allowed) The fluid flow device of claim 4 wherein said first detector and said second detector are laser measuring devices for determining the heights of said selected section of said substantially continuous fluid flow at said first predetermined location and said second predetermined location.

6. (original/allowed) The fluid flow device of claim 4 wherein said first detector and said second detector are ultrasound measuring devices for determining the heights of said selected section of said substantially continuous fluid flow at said first predetermined location and said second predetermined location.

7. (original/allowed) The fluid flow device of claim 4 wherein said first detector and said second detector are electromagnetic measuring devices for determining the heights of said selected section of said substantially continuous fluid flow at said first predetermined location and said second predetermined location.

8. (original/allowed) The fluid flow device of claim 7 wherein said electromagnetic measuring devices include at least one hall effect transducer.

9. (original/allowed) The fluid flow device of claim 4 wherein said first detector and said second detector are pressure measuring devices for determining the heights of said selected section of said substantially continuous fluid flow at said first predetermined location and said second predetermined location.

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45. (Canceled).

46. (original/allowed) A method for measuring the flow rate of a continuous fluid flow comprising

transporting within a conduit in a selected direction a continuous fluid flow varying in height up to a maximum height wherein said maximum height is less than the height which would occlude said conduit;

determining with a detector at a first predetermined location the height of a selected section of the continuous fluid flow at said first predetermined location and for determining at a second predetermined location located in a selected direction and a known distance that said selected section of the continuous milk flow has traversed from said first predetermined location to said second predetermined location; and

deriving with a processing device operatively connected to said detector the cross-sectional area of said continuous fluid flow determined by said detector from said height of said selected section of the continuous milk flow at said first predetermined location, determining an elapsed time for the selected section of said continuous milk flow to traverse said known distance and calculating therefrom fluid flow rate of the continuous fluid flow through said conduit.

47. (original/allowed) The method of claim 46 device wherein the step of determining with said detector includes said detector having a first detection section for determining at said first predetermined location the height of a said selected

section of the continuous milk flow and a second detection section for determining the height of said selected section of the continuous milk flow low at said second predetermined location.

48. (original) The method of claim 47 wherein said step of detecting includes the detector having a first detection section and said second detection section located within said conduit, said first detection section comprising a first sensor having a predetermined cross-sectional area defining an opening for passing a selected section of fluid flow therethrough wherein said predetermined cross-sectional area is greater than the cross-sectional area of said fluid flow passing therethrough and said second detection section comprising a second sensor having a cross-sectional area substantially equal to the cross-sectional area of the first sensor and being positioned relative to said conduit and said first sensor for determining the height of a said selected section of the continuous fluid flow at said second predetermined location.

49. (original/allowed) A method for measuring the flow rate of a continuous fluid flow comprising

transporting in a selected direction within a conduit a continuous fluid flow varying in height up to a maximum height wherein said maximum height is less than the height which would occlude said conduit;

determining with a first detector positioned relative to said conduit at a first predetermined location the height of a selected section of the continuous fluid flow at said first predetermined location; and

determining with a second detector positioned relative to said conduit and said first detector at a second predetermined location located in a selected direction and a known distance from said first predetermined location the height of said selected section of the continuous fluid flow at said second predetermined location; and

deriving with a processing device operatively connected to said first detector and said second detector the cross-sectional area of said continuous fluid flow determined by said first detector from said height of said selected section of the continuous fluid flow at said first predetermined location, determining an elapsed time for said selected section of the continuous fluid flow to traverse said known distance between said first detector and said second detector and calculating therefrom fluid flow rate of the continuous fluid flow through said conduit.

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